AMENDMENTS TO THE CLAIMS

1. (Currently amended) A sub-atmospheric downstream pressure control apparatus, characterized by:

a first flow restricting element (FRE), wherein said first FRE is an immobile flow restricting element;

a process chamber located in serial fluidic communication upstream from said first FRE;

a pressure control chamber (PCC) located in serial fluidic communication downstream from said first FRE;

a second FRE located in serial fluidic communication downstream from said PCC, wherein said second FRE is an immobile flow restricting element;

a gas source; and

a flow controlling device in serial fluidic communication downstream from said gas source and upstream from said PCC for controlling the PCC pressure to never exceed the pressure in said process chamber during normal operation, said flow controlling device capable of responding with a millisecond response time.

2. (Previously presented) A sub-atmospheric downstream pressure control apparatus as in claim 1 further characterized by:

a reactive gas source connected in serial fluidic communication upstream from said PCC; and

an abatement element located within said PCC.

3. (Previously presented) A sub-atmospheric downstream pressure control apparatus as in claim 1 further characterized by:

a third FRE connected in serial fluidic communication downstream from said PCC;

an abatement chamber connected in serial fluidic communication upstream from said third FRE;

a reactive gas source connected in serial fluidic communication upstream from said abatement chamber; and

an abatement element disposed within said abatement chamber.

4. (Currently Amended) A sub-atmospheric downstream pressure control apparatus as in claim 1 wherein; ~~a process chamber is located in serial fluidic communication upstream from said first FRE;~~

said process chamber and said PCC are formed as compartments within a single process vessel; and

said first FRE is formed within the partition between said process chamber and said PCC.

5. (Currently amended) A wafer processing apparatus comprising a process chamber, said apparatus characterized by:

a process reactive gas supply line from a process gas source in serial fluidic communication upstream from said process chamber;

an upstream flow control device located in serial fluidic communication upstream from said process chamber and downstream from said process gas source;

a first flow restricting element located in serial fluidic communication downstream from said process chamber, wherein said first FRE is an immobile flow restricting element;

a pressure control chamber (PCC) located in serial fluidic communication downstream from said first FRE;

a second FRE located in serial fluidic communication downstream from said PCC, wherein said second FRE is an immobile flow restricting element;

a gas source; and

a flow controlling device in serial fluidic communication downstream from said gas source and upstream from said PCC for controlling the PCC pressure to never exceed the pressure in said process chamber during normal operation, said flow controlling device capable of responding with a millisecond response time.

6. (Previously presented) A sub-atmospheric downstream pressure control apparatus as in claim 5 further characterized by:

a reactive gas source connected in serial fluidic communication upstream from said PCC; and

an abatement element located within said PCC.

7. (Previously presented) A sub-atmospheric downstream pressure control apparatus as in claim 5 further characterized by:

a third FRE connected in serial fluidic communication downstream from said PCC;

an abatement chamber connected in serial fluidic communication upstream from said third FRE;

a reactive gas source connected in serial fluidic communication upstream from said abatement chamber; and

an abatement element located within said abatement chamber.

8. (Previously presented) A sub-atmospheric downstream pressure control apparatus as in claim 5 wherein a process chamber is located in serial fluidic communication upstream from said first FRE;

said process chamber and said PCC are formed as compartments within a single process vessel; and

said first FRE is formed within the partition between said process chamber and said PCC.

9. (Original) A sub-atmospheric downstream pressure control apparatus as in claim 5 wherein said process is LPCVD.

10. (Original) A sub-atmospheric downstream pressure control apparatus as in claim 5 wherein said process is RIE.

11. (Original) A sub-atmospheric downstream pressure control apparatus as in claim 5 wherein said process is PECVD.

12 – 15 (Canceled)

16. (Currently amended) A sub-atmospheric downstream pressure control apparatus comprising:

(a) a first flow restricting element (FRE) and a process chamber located in serial fluidic communication upstream from said first FRE, wherein said first FRE is an immobile flow restricting element;

(b) a pressure control chamber (PCC) located in serial fluidic communication downstream from said first FRE;

(c) a second FRE located in serial fluidic communication downstream from said PCC, wherein said second FRE is an immobile flow restricting element;

(d) a gas source (208);

(e) a flow controlling device in serial fluidic communication downstream from said gas source and upstream from said PCC for controlling the PCC pressure to never exceed the pressure in said process chamber during normal operation, said flow controlling device capable of responding with a millisecond response time;

(f) a reactive gas source connected in serial fluidic communication upstream from said PCC; and

(g) an abatement element located within said PCC.